

Topological bound states in mechanical graphene

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Abstract:

The discovery of topologically non-trivial electronic systems has opened a new age in condensed matter research. From topological insulators to topological superconductors and Weyl semimetals, it is now understood that some of the most remarkable and robust phases in electronic systems (e.g. Quantum Hall or Anomalous Quantum Hall) are the result of topological protection. In this work we demonstrate the acoustic analogue of a topologically bound state, a different class of non-propagating protected state that cannot be destroyed by local perturbations.